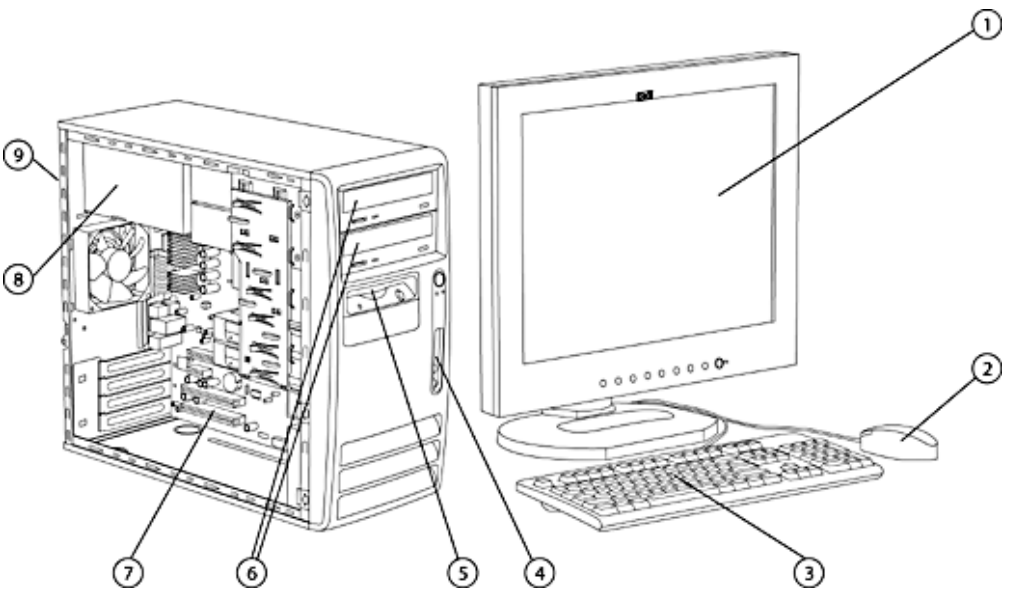
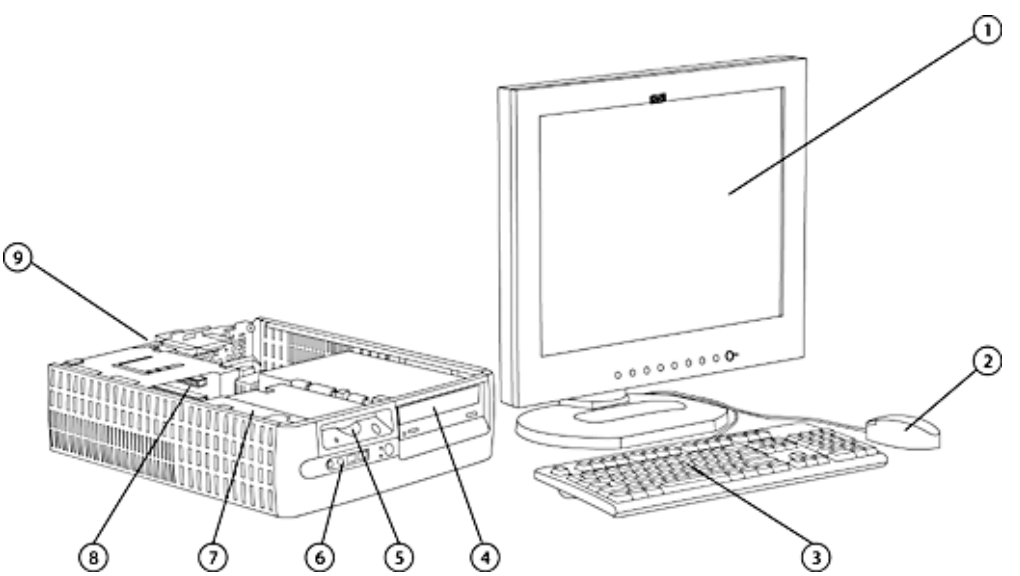
Microtower



1. Monitor (sold separately)
2. 2-Button Scroll Mouse
3. 2004 Standard Keyboard
4. 2 USB 2.0, headphone and microphone
5. 2 3.5" external bays for optional diskette drive, 16-in-1 Media Card Reader, or other 3.5" device
6. 2 internal 3.5" bays and 2 external 5.25" bays
7. 2 full-height PCI slots , 1 x1 PCI-E, 1 x16 PCI-E
8. 250-watt PFC power supply
9. 6 USB 2.0, 1 standard serial port, 1 parallel port, 2 PS/2, 1 RJ-45, 1 VGA, 1 DVI-D , audio in/out, and microphone

Small Form Factor



Overview

1. Monitor (sold separately)
2. 2-Button Scroll Mouse
3. 2004 Standard Keyboard
4. 1 external 5.25" bay
5. 1 3.5" internal bay and 1 3.5" external bay for optional diskette drive, 16-in-1 Media Card Reader, or other 3.5" device
6. 2 USB 2.0, headphone and microphone
7. 2 LP PCI slots, 1 x1 LP PCI-E, 1 x16 LP PCI-E
8. 200-watt PFC power supply
9. 6 USB 2.0, 1 standard serial port, 1 parallel port, 2 PS/2, 1 RJ-45, 1 VGA, 1 DVI-D, audio in/out, and microphone

At A Glance

- AMD Athlon™ 64 and Sempron™ processors with HyperTransport™ technology
- Operating Systems:
  Genuine Windows XP Professional SP2
  Genuine Windows Home Edition SP2
  Genuine Windows XP Professional x64 Edition
  SuSE Linux 9.3
  FreeDOS
- Support for AMD Enhanced Virus Protection™ and AMD Cool 'n Quiet™ technologies
- Integrated DDR I dual-channel memory controller
- ATI Radeon® Xpress 200M chipset
- Integrated Radeon X300 based graphics – standard VGA and DVI-D ports
- Supports up to 4-GB of PC 3200 (DDR 400) Synch DRAM Memory
- 6 rear USB 2.0 ports and 2 front USB 2.0 ports
- Realtek AC97 integrated audio with internal speaker
- Integrated PCI-E Broadcom NetXtreme Gigabit Ethernet NIC
- x1 and x16 PCI-Express slots
- Two 32-bit PCI slots
- Energy Star compliant with energy-saving features
- Protected by HP Services, including a 3-3-3 standard warranty. Certain restrictions and exclusions apply.

Pre-Configured Models

Smart Buy Promotion Models

Small Form Factor

PZ585UA#ABA	PROMO dx5150S/A64-32/80hnc/512G4
PZ587UA#ABA	PROMO dx5150S/A64-35/80hnr/512G4
PZ589UA#ABA	PROMO dx5150S/A64-38/80hnw/512G4

Microtower

PZ586UA#ABA	PROMO dx5150M/A64-32/80hnc/512G4
PZ588UA#ABA	PROMO dx5150M/A64-35/80hnr/512G4
PZ590UA#ABA	PROMO dx5150M/A64-38/80hnw/512G4
PZ591UA#ABA	PROMO dx5150M/A64-40/160hnq/1.0G4
PZ635UA#ABA	PROMO dx5150M/A64-38/80hnw/1.0G4

Standard Models

Small Form Factor

PV734AA#ABA	dx5150S/AS-30/40hnc/256F/4u	HP dx5150 Small Form Factor, Genuine Microsoft Windows XP Professional SP2, ATI Radeon Xpress 200 chipset, AMD Sempron 3000+ (1.8Ghz), 1600MHz Front Side Bus, 128KB L2 cache, 256MB PC3200 DDR (1x256), Integrated ATI Radeon X200G graphics with VGA and DVI-D ports, 40GB Serial ATA Hard Drive (7200 rpm), 48X CD-ROM drive, No Floppy Drive, Integrated audio with internal speaker, Integrated Broadcom NetXtreme Gigabit networking, Standard PS/2 Keyboard, USB Optical Scroll Mouse, 3-year Parts, 3-year Labor, 3-year Onsite warranty
PV735AA#ABA	dx5150S/A64-32/40hnc/512G/4u	HP dx5150 Small Form Factor, Genuine Microsoft Windows XP Professional SP2, ATI Radeon Xpress 200 chipset, AMD Athlon64 3200+ (2.0Ghz), 2000MHz Front Side Bus, 512KB L2 cache, 512MB PC3200 DDR (2x256), Integrated ATI Radeon X200G graphics with VGA and DVI-D ports, 40GB Serial ATA Hard Drive (7200 rpm), 48X CD-ROM drive, No Floppy Drive, Integrated audio with internal speaker, Integrated Broadcom NetXtreme Gigabit networking, Standard PS/2 Keyboard, USB Optical Scroll Mouse, 3-year Parts, 3-year Labor, 3-year Onsite warranty
PV736AA#ABA	dx5150S/A64-32/80hnw/512G/4u	HP dx5150 Small Form Factor, Genuine Microsoft Windows XP Professional SP2, ATI Radeon Xpress 200 chipset, AMD Athlon64 3200+ (2.0Ghz), 2000MHz Front Side Bus, 512KB L2 cache, 512MB PC3200 DDR (2x256), Integrated ATI Radeon X200G graphics with VGA and DVI-D ports, 80GB Serial ATA Hard Drive (7200 rpm), 48X/24X/48X/16X Combo Drive (CD-RW & DVD-ROM), No Floppy Drive, Integrated audio with internal speaker, Integrated Broadcom NetXtreme Gigabit networking, Standard PS/2 Keyboard, USB Optical Scroll Mouse, 3-year Parts, 3-year Labor, 3-year Onsite warranty

Standard Features - Select Models (localized by Regions)

PZ561UA#ABA	dx5150S/A64-30/40hcn/256G/4	HP dx5150 Small Form Factor, Genuine Microsoft Windows XP Professional SP2, ATI Radeon Xpress 200 chipset, AMD Athlon64 3000+, 2000MHz Front Side Bus, 512KB L2 cache, 256MB PC3200 DDR, Integrated ATI Radeon X200G graphics with VGA and DVI-D ports, 40GB Serial ATA Hard Drive (7200 rpm), 48X CD-ROM Drive, No Floppy Drive, Integrated audio with internal speaker, Integrated Broadcom NetXtreme Gigabit networking, Standard PS/2 Keyboard, USB Optical Scroll Mouse, 3-year Parts, 3-year Labor, 3-year Onsite warranty
PZ563UA#ABA	dx5150S/A64-30/40hcn/512G/4	HP dx5150 Small Form Factor, Genuine Microsoft Windows XP Professional SP2, ATI Radeon Xpress 200 chipset, AMD Athlon64 3000+, 2000MHz Front Side Bus, 512KB L2 cache, 512MB PC3200 DDR, Integrated ATI Radeon X200G graphics with VGA and DVI-D ports, 40GB Serial ATA Hard Drive (7200 rpm), 48X CD-ROM Drive, No Floppy Drive, Integrated audio with internal speaker, Integrated Broadcom NetXtreme Gigabit networking,Standard PS/2 Keyboard, USB Optical Scroll Mouse, 3-year Parts, 3-year Labor, 3-year Onsite warranty
PZ564UA#ABA	dx5150S/A64-30/40hdn/512G/4	HP dx5150 Small Form Factor, Genuine Microsoft Windows XP Professional SP2, ATI Radeon Xpress 200 chipset, AMD Athlon64 3000+, 2000MHz Front Side Bus, 512KB L2 cache, 512MB PC3200 DDR, Integrated ATI Radeon X200G graphics with VGA and DVI-D ports, 40GB Serial ATA Hard Drive (7200 rpm), 48X DVD-ROM Drive, No Floppy Drive, Integrated audio with internal speaker, Integrated Broadcom NetXtreme Gigabit networking, Standard PS/2 Keyboard, USB Optical Scroll Mouse, 3-year Parts, 3-year Labor, 3-year Onsite warranty
PZ565UA#ABA	dx5150S/A64-30/40hrn/512G/4	HP dx5150 Small Form Factor, Genuine Microsoft Windows XP Professional SP2, ATI Radeon Xpress 200 chipset, AMD Athlon64 3000+, 2000MHz Front Side Bus, 512KB L2 cache, 512MB PC3200 DDR, Integrated ATI Radeon X200G graphics with VGA and DVI-D ports, 40GB Serial ATA Hard Drive (7200 rpm), 48X/32X CD-RW Drive, No Floppy Drive, Integrated audio with internal speaker, Integrated Broadcom NetXtreme Gigabit networking, Standard PS/2 Keyboard, USB Optical Scroll Mouse, 3-year Parts, 3-year Labor, 3-year Onsite warranty
PZ566UA#ABA	dx5150S/A64-30/40hwn/512G/4	HP dx5150 Small Form Factor, Genuine Microsoft Windows XP Professional SP2, ATI Radeon Xpress 200 chipset, AMD Athlon64 3000+, 2000MHz Front Side Bus, 512KB L2 cache, 512MB PC3200 DDR, Integrated ATI Radeon X200G graphics with VGA and DVI-D ports, 40GB Serial ATA Hard Drive (7200 rpm), 48X/32X CD-RW/DVD-ROM Combo Drive, No Floppy Drive, Integrated audio with internal speaker, Integrated Broadcom NetXtreme Gigabit networking, Standard PS/2 Keyboard, USB Optical Scroll Mouse, 3-year Parts, 3-year Labor, 3-year Onsite warranty

Microtower

Standard Features - Select Models (localized by Regions)

PV737AA#ABA	dx5150M/AS-30/40hnc/256F/4u	HP dx5150 Microtower, Genuine Microsoft Windows XP Professional SP2, ATI Radeon Xpress 200 chipset, AMD Sempron 3000+ (1.8Ghz), 1600MHz Front Side Bus, 128KB L2 cache, 256MB PC3200 DDR (1x256), Integrated ATI Radeon X200G graphics with VGA and DVI-D ports, 40GB Serial ATA Hard Drive (7200 rpm), 48X CD-ROM drive, No Floppy Drive, Integrated audio with internal speaker, Integrated Broadcom NetXtreme Gigabit networking,Standard PS/2 Keyboard, USB Optical Scroll Mouse, 3-year Parts, 3-year Labor, 3-year Onsite warranty
PV738AA#ABA	dx5150M/A64-32/40hnc/512G/4u	HP dx5150 Microtower, Genuine Microsoft Windows XP Professional SP2, ATI Radeon Xpress 200 chipset, AMD Athlon64 3200+ (2.0Ghz), 2000MHz Front Side Bus, 512KB L2 cache, 512MB PC3200 DDR (2x256), Integrated ATI Radeon X200G graphics with VGA and DVI-D ports, 40GB Serial ATA Hard Drive (7200 rpm), 48X CD-ROM drive, No Floppy Drive, Integrated audio with internal speaker, Integrated Broadcom NetXtreme Gigabit networking,Standard PS/2 Keyboard, USB Optical Scroll Mouse, 3-year Parts, 3-year Labor, 3-year Onsite warranty
PV739AA#ABA	dx5150M/A64-32/80hnw/512G/4u	HP dx5150 Microtower, Genuine Microsoft Windows XP Professional SP2, ATI Radeon Xpress 200 chipset, AMD Athlon64 3200+ (2.0Ghz), 2000MHz Front Side Bus, 512KB L2 cache, 512MB PC3200 DDR (2x256), Integrated ATI Radeon X200G graphics with VGA and DVI-D ports, 80GB Serial ATA Hard Drive (7200 rpm), 48X/24X/48X/16X Combo Drive (CD-RW & DVD-ROM), No Floppy Drive, Integrated audio with internal speaker, Integrated Broadcom NetXtreme Gigabit networking, Standard PS/2 Keyboard, USB Optical Scroll Mouse, 3-year Parts, 3-year Labor, 3-year Onsite warranty
PV740AA#ABA	dx5150M/A64-35/80hnw/512G/4u	HP dx5150 Microtower, Genuine Microsoft Windows XP Professional SP2, ATI Radeon Xpress 200 chipset, AMD Athlon64 3500+ (2.2Ghz), 2000MHz Front Side Bus, 512KB L2 cache, 512MB PC3200 DDR (2x256), Integrated ATI Radeon X200G graphics with VGA and DVI-D ports, 80GB Serial ATA Hard Drive (7200 rpm), 48X/24X/48X/16X Combo Drive (CD-RW & DVD-ROM), No Floppy Drive, Integrated audio with internal speaker, Integrated Broadcom NetXtreme Gigabit networking, Standard PS/2 Keyboard, USB Optical Scroll Mouse, 3-year Parts, 3-year Labor, 3-year Onsite warranty
PV741AA#ABA	dx5150M/A64-38/80hfw/1.0G/4u	HP dx5150 Microtower, Genuine Microsoft Windows XP Professional SP2, ATI Radeon Xpress 200 chipset, AMD Athlon64 3800+ (2.4Ghz), 2000MHz Front Side Bus, 512KB L2 cache, 1GB PC3200 DDR (2x512), Integrated ATI Radeon X200G graphics with VGA and DVI-D ports, 80GB Serial ATA Hard Drive (7200 rpm), 48X/24X/48X/16X Combo Drive (CD-RW & DVD-ROM), No Floppy Drive, Integrated audio with internal speaker, Integrated Broadcom NetXtreme Gigabit networking, Standard PS/2 Keyboard, USB Optical Scroll Mouse, 3-year Parts, 3-year Labor, 3-year Onsite warranty
PZ568UA#ABA	dx5150M/A64-30/40hcn/256G/4	HP dx5150 Microtower, Genuine Microsoft Windows XP Professional SP2, ATI Radeon Xpress 200 chipset, AMD Athlon64 3000+, 2000MHz Front Side Bus, 512KB L2 cache, 256MB PC3200 DDR, Integrated ATI Radeon X200G graphics with VGA and DVI-D ports, 40GB Serial ATA Hard Drive (7200 rpm), 48X CD-ROM, No Floppy Drive, Integrated audio with internal speaker, Integrated Broadcom NetXtreme Gigabit networking, Standard PS/2 Keyboard, USB Optical Scroll Mouse, 3-year Parts, 3-year Labor, 3-year Onsite warranty

Standard Features - Select Models (localized by Regions)

PZ569UA#ABA	dx5150M/A64-30/40hcn/512G/4	HP dx5150 Microtower, Genuine Microsoft Windows XP Professional SP2, ATI Radeon Xpress 200 chipset, AMD Athlon64 3000+, 2000MHz Front Side Bus, 512KB L2 cache, 512MB PC3200 DDR, Integrated ATI Radeon X200G graphics with VGA and DVI-D ports, 40GB Serial ATA Hard Drive (7200 rpm), 48X CD-ROM, No Floppy Drive, Integrated audio with internal speaker, Integrated Broadcom NetXtreme Gigabit networking, Standard PS/2 Keyboard, USB Optical Scroll Mouse, 3-year Parts, 3-year Labor, 3-year Onsite warranty
PZ570UA#ABA	dx5150M/A64-30/40hdn/512G/4	HP dx5150 Microtower, Genuine Microsoft Windows XP Professional SP2, ATI Radeon Xpress 200 chipset, AMD Athlon64 3000+, 2000MHz Front Side Bus, 512KB L2 cache, 512MB PC3200 DDR, Integrated ATI Radeon X200G graphics with VGA and DVI-D ports, 40GB Serial ATA Hard Drive (7200 rpm), 16x DVD-ROM, No Floppy Drive, Integrated audio with internal speaker, Integrated Broadcom NetXtreme Gigabit networking, Standard PS/2 Keyboard, USB Optical Scroll Mouse, 3-year Parts, 3-year Labor, 3-year Onsite warranty
PZ572UA#ABA	dx5150M/A64-30/40hrn/512G/4	HP dx5150 Microtower, Genuine Microsoft Windows XP Professional SP2, ATI Radeon Xpress 200 chipset, AMD Athlon64 3000+, 2000MHz Front Side Bus, 512KB L2 cache, 512MB PC3200 DDR, Integrated ATI Radeon X200G graphics with VGA and DVI-D ports, 40GB Serial ATA Hard Drive (7200 rpm), 48X/32X/48X CD-RW, No Floppy Drive, Integrated audio with internal speaker, Integrated Broadcom NetXtreme Gigabit networking, Standard PS/2 Keyboard, USB Optical Scroll Mouse, 3-year Parts, 3-year Labor, 3-year Onsite warranty
PZ571UA#ABA	dx5150M/A64-30/40hwn/512G/4	HP dx5150 Microtower, Genuine Microsoft Windows XP Professional SP2, ATI Radeon Xpress 200 chipset, AMD Athlon64 3000+, 2000MHz Front Side Bus, 512KB L2 cache, 512MB PC3200 DDR, Integrated ATI Radeon X200G graphics with VGA and DVI-D ports, 40GB Serial ATA Hard Drive (7200 rpm), 48X/32X CD-RW/DVD-ROM Combo Drive, No Floppy Drive, Integrated audio with internal speaker, Integrated Broadcom NetXtreme Gigabit networking, Standard PS/2 Keyboard, USB Optical Scroll Mouse, 3-year Parts, 3-year Labor, 3-year Onsite warranty

Standard Features - Custom Components

		MT	SFF
Operating System – One of the following	Genuine Windows XP Professional with service pack 2	X	X
	Genuine Windows XP Home with service pack 2	X	X
	Genuine Windows XP Professional x64 Edition	X	X
	FreeDOS	X	X
	SuSE Linux Personal 9.3 OEM (delivered on CDs with system, not pre-installed)	X	X

	AMD Sempron Processors	**System Bus**	**Standard L2 Cache**		
Processor and Speed – One of the following	AMD Sempron 3000+ (1.8GHz)	1600 MHz	128 KB	X	X
	AMD Sempron 3200+ (1.8 GHz)	1600 MHz	256 KB	X	X
	AMD Sempron 3500+ (2.0 GHz)	1600 MHz	256 KB	X	X
	AMD Sempron Processors	**System Bus**	**Standard L2 Cache**		
	AMD Athlon 64 3000+ (1.8 GHz)	2000 MHz	512 KB	X	X
	AMD Athlon 64 3200+ (2.0 GHz)	2000 MHz	512 KB	X	X
	AMD Athlon 64 3500+ (2.2 GHz)	2000 MHz	512 KB	X	X
	AMD Athlon 64 3800+ (2.4 GHz)	2000 MHz	512 KB	X	X
	AMD Athlon 64 4000+ (2.4 GHz)	2000 MHz	1024 KB	X	X
	AMD Athlon 64 X2 Dual-Core 3800+ (2.0 GHz)	2000 MHz	512KB x 2	X	X
	AMD Athlon 64 X2 Dual-Core 4200+ (2.2 GHz)	2000 MHz	512KB x 2	X	X

Serial ATA SMART Hard Drives	40GB Serial ATA Hard Drive (7200 rpm)	X	X
	80GB Serial ATA Hard Drive (7200 rpm)	X	X
	160GB Serial ATA Hard Drive (7200 rpm)	X	X
	250GB Serial ATA Hard Drive (7200 rpm)	X	X
	2nd hard drive, 40GB Serial ATA Hard Drive (7200 rpm)	X	X
	2nd hard drive, 80GB Serial ATA Hard Drive (7200 rpm)	X	X
	2nd hard drive, 160GB Serial ATA Hard Drive (7200 rpm)	X	X
	2nd hard drive, 250GB Serial ATA Hard Drive (7200 rpm)	X	X

Standard Features - Custom Components

		MT	SFF
Standard Memory – One of the following	256-MB DDR Synch DRAM PC3200 (400-MHz) Non ECC (1 x 256 DIMM)	X	X
	512-MB DDR Synch DRAM PC3200 (400-MHz) Non ECC (1 x 512 DIMM)	X	X
	512-MB DDR Synch DRAM PC3200 (400-MHz) Non ECC (2 x 256 DIMM)	X	X
	1-GB DDR Synch DRAM PC3200 (400-MHz) Non ECC (1 x 1024 DIMM)	X	X
	1-GB DDR Synch DRAM PC3200 (400-MHz) Non ECC (2 x 512 DIMM)	X	X
	2-GB DDR Synch DRAM PC3200 (400-MHz) Non ECC (2 x 1024 DIMM)	X	X
	4-GB DDR Synch DRAM PC3200 (400-MHz) Non ECC (4 x 1024 DIMM)	X	X
Removable Storage	Optional 1.44-MB Diskette Drive	X	X
Media Reader	HP 16-in-1 Media Reader (PCI card supplies internal USB connection)	X	X
		MT	**SFF**
Optical Storage - One of the following	48X Max CD-ROM Drive	X	X
	48X/32X/48X CD-RW Drive	X	X
	16X/40X DVD-ROM Drive	X	X
	48X/32X/48X/16X Combo CD-RW/DVD-ROM Drive	X	X
	16X DVD+R/+RW Drive	X	X
I/O Card	IEEE 1394a (FireWire 400) Full Height PCI card	X	
	IEEE 1394a (FireWire 400) Low Profile PCI card		X
		MT	**SFF**
Keyboard	Standard Keyboard PS/2	X	X
	Standard Keyboard USB	X	X
		MT	**SFF**
Mouse	PS/2 2-Button Scroll Mouse	X	X
	HP PS/2 2-Button Optical Scroll Mouse	X	X
	USB Optical Scroll Mouse	X	X

Standard Features - Custom Components

Modem	2006 Agere PCI 56K International SoftModem (full height)	X	
	2006 Agere PCI 56K International SoftModem (low profile)		X
Audio	Integrated Realtek AC97 audio with premium internal speaker	X	X
NIC		**MT**	**SFF**
	Integrated PCI-E Broadcom NetXtreme Gigabit Ethernet	X	X
	Intel PRO/1000 GT Gigabit PCI Adapter (full height bracket)	X	
	Intel PRO/1000 GT Gigabit PCI Adapter (low profile bracket)		X
Chipset	ATI Radeon Xpress 200M	X	X
Graphics	Integrated Radeon X300 based graphics with standard VGA and DVI-D ports	X	X
	ATI Radeon X300 SE 128MB DDR FH PCIe DVI w/TV-out	X	
	ATI Radeon X300 SE 128MB DDR LP PCIe DVI w/TV-out		X
	ATI Radeon X1300 256MB DDR LP PCIe DVI w/TV-out	X	X
	ATI Radeon X1600XT 256MB DDR FH dual head PCIe	X	
Software (Microsoft Windows system only)		**MT**	**SFF**
	Norton Antivirus 2005 with 60 day Live Update Subscription	X	X
	Corel Word Perfect Office 11	X	X
	Microsoft Office 2003 Basic	X	X
	Microsoft Office 2003 Professional	X	X
	Microsoft Office 2003 Small Business Edition	X	X
	Microsoft Works 8.5	X	X
	Microsoft Works 8.5 - LA	X	X
	Google Toolbar	X	X
	OpenOffice.org Office Suite	X	X
	NOTE: Microsoft Works 8.5 not available with Microsoft Windows XP Professional x64 Edition.		
	NOTE: Office XP Small Business and Office Professional not available in all countries.		
Security	Chassis Clamp Lock	X	X
	ProtectTools Embedded security module (TPM 1.1)	X	X
Miscellaneous	Tower Stand		X
Client Management Solutions	For information about Client Management Solutions visit: www.hp.com/go/EasyDeploy.	X	X

Standard Features

Base Unit Contents	Microtower	Small Form Factor
AMD processor, heatsink	X	X
System board with ATI Radeon® Xpress 200M chipset	X	X
One PATA Cable	X	X
Optional diskette drive with cable	X	X
One SATA Cable	X	X
Quick Setup booklet	X	X
Getting Started guide	X	X
Product Documentation on CD	X	X
HP OS CD and HP Restore CD	X	X
Warranty booklet	X	X
Power Cord	X	X
Standard Keyboard PS/2	X	X
PS/2 Scroll Mouse	X	X

Supported Operating System		
DOS	No	No
Windows 3.1	No	No
Windows 95	No	No
Windows 98	No	No
Windows NT 4.X	No	No
Windows 2000 / Windows XP Pro dual-install	No	No
Windows 2000 (Web Support)	Yes	Yes
Windows XP Professional SP2	Yes	Yes
Windows XP Home SP2	Yes	Yes
Windows XP Professional x64 Edition	Yes	Yes
SuSE Linux	Yes	Yes

Expansion Capability		
Memory Expansion Slots (Non-ECC)	4 DIMM slots	4 DIMM slots
Maximum Memory	4-GB (1-GB per slot maximum)	4-GB (1-GB per slot maximum)

Slots		
PCI	2 full-height	2 low-profile
PCI-Express	1 x1 full-height, 1 x16 full-height	1 x1 low-profile, 1 x16 low-profile

Bays	Total Bays = 6	Total Bays = 3
Internal	(2) 3.5-inch bays	(1) 3.5-inch bay
External	(2) full-length 5.25-inch	(1) full-length 5.25-inch
	(2) full-length 3.5-inch	(1) full-length 3.5-inch

Wireless Support	PCI card or external USB	PCI card or external USB

Standard Features

USB Support	(2) Front USB 2.0 Ports	(2) Front USB 2.0 Ports
	(6) Rear USB 2.0 Ports	(6) Rear USB 2.0 Ports

Interfaces (Legacy)		
Parallel Port	1	1
Serial Port	1	1
PS/2 Keyboard	1	1
PS/2 Mouse	1	1
VGA/DVI-D Port	1/1	1/1

Dimensions		
Chassis Dimensions (H x W x D) Centimeters	36.8 x 17.5 x 42.0	10.3 x 33.78 x 38.35
Chassis Dimensions (H x W x D) Inches	14.5 x 6.88 x 16.5	3.95 x 13.3 x 15.1
System Weight	23.8 lb (10.8 kg)	21 lb (9.53 kg)
System Volume	1651 sq. in. (27.0 liters)	795 sq. in. (13 liters)
Shipping Weight	32 lb (14.51 kg)	28 lb (12.7 kg)
Packaged Unit Dimensions (H x W x D)	22.20 x 13.00 x 23.50 in (56.39 x 33.02 x 59.69 cm)	12.6 x 19 x 20 in (32 x 48.26 x 50.8 cm)

System Memory		
Type/Speed	DDR I Synch DRAM PC3200 (400-MHz) Non-ECC	DDR I Synch DRAM PC3200 (400-MHz) Non-ECC
Maximum Memory	4 GB (1-GB per slot maximum)	4 GB (1-GB per slot maximum)
Memory Parity	Not Needed for non-ECC	Not Needed for non-ECC
ECC Memory	Not Supported	Not Supported
Serial Presence Detect Support	Supported	Supported
Dual channel memory Support	Yes. Requires two identical (size and technology) memory modules.	Yes. Requires two identical (size and technology) memory modules.

Supported Features		
Processor	AMD Sempron™ and AMD Athlon™ 64	AMD Sempron™ and AMD Athlon™ 64
CPU Bus Speed Supported	AMD Sempron - 1600-MHz System Bus AMD Athlon - 2000-MHz System Bus	AMD Sempron - 1600-MHz System Bus AMD Athlon - 2000-MHz System Bus
Memory Type Supported	DDR 1 (non-ECC)	DDR 1 (non-ECC)
Memory Speed Supported	DDR Synch DRAM PC3200 (400 MHz)	DDR Synch DRAM PC3200 (400 MHz)
Serial Presence Detect Support	Yes	Yes
Hard Drive Interfaces Supported	SMART III SATA 1.5Gb/s	SMART III SATA 1.5Gb/s
Hard Drive Controller (PCI) Supported	Serial ATA (SATA) 1.5Gb/s	Serial ATA (SATA) 1.5Gb/s

Standard Features

AMD Sempron™		
32-bit/64-bit support	32-bit	32-bit
Coprocessor	Integrated	Integrated
CPU Socket Type/Number	939-pin	939-pin
CPU Package	FC-PGA	FC-PGA
System Bus Speed	1600 MHz	1600 MHz
Standard L2 Cache	128-KB or 256-KB, depending on processor	128-KB or 256-KB, depending on processor
AMD Enhanced Virus Protection	Yes	Yes
AMD Cool 'n Quiet™	Yes	Yes
L2 Cache Architecture / Speed	Full core clock speed	Full core clock speed
Cache Upgradeable To	Not upgradeable - Integrated into Processor	Not upgradeable - Integrated into Processor
Energy Star Qualified	Yes	Yes

AMD Athlon™ 64		
32-bit/64-bit support	32-bit and 64-bit	32-bit and 64-bit
Coprocessor	Integrated	Integrated
CPU Socket Type/Number	939-pin	939-pin
CPU Package	FC-PGA	FC-PGA
System Bus Speed	2000 MHz	2000 MHz
Standard L2 Cache	512-KB	512-KB
AMD Enhanced Virus Protection	Yes	Yes
AMD Cool 'n Quiet	Yes	Yes
L2 Cache Architecture / Speed	Full core clock speed	Full core clock speed
Cache Upgradeable To	Not upgradeable - Integrated into Processor	Not upgradeable - Integrated into Processor
Energy Star Qualified	Yes	Yes

System Board		
Architecture	AMD Athlon 64/Sempron/PCI/PCI-Express	AMD Athlon 64/Sempron/PCI/PCI-Express
Chipset	ATI Radeon® Xpress 200M	ATI Radeon® Xpress 200M
I/O Controller	SMSC LPC47B397 Super I/O	SMSC LPC47B397 Super I/O
System Board Form Factor	Standard uATX	Standard uATX
Processor Socket - 939 Pin ZIF	Yes	Yes
DIMM Connectors (2.5V)	Yes (4)	Yes (4)
PCI-Express Connector	Yes (1) X1 and (1) X16	Yes (1) X1 and (1) X16
Integrated PCI-E Graphics	Yes	Yes
PCI Connectors (32 bit)	Yes (2 on system board)	Yes (2 on system board)
Flash ROM (LPC based)	Yes	Yes
Audio	Yes	Yes
CD ROM IN (Audio)	Yes (2)	Yes (2)
Clear CMOS	Yes	Yes
CPU Fan Header	Yes	Yes
Chassis Fan Header	Yes	Yes
CMOS Battery Holder - Lithium	Yes	Yes
Hood Lock Header	No	No
Hood Sense Header	No	No

Standard Features

Multibay Header	No	No
Multport Header	No	No
NIC supported features:		
WOL (Wake-On-Lan®)	Yes	Yes
AOL (Alert-On-LAN®)	No	No
SOS - Network based alerting	Yes	Yes
ASF 1.0 (Alert Standards Format)	Yes	Yes
PXE (Pre-Boot Execution Environment)	Yes	Yes
Power Supply Header	Yes	Yes
Power Switch, Power LED & Hard Drive LED Header	Yes	Yes
Password Clear Header	Yes	Yes
Riser Connector	No	No
SCSI LED Header	Yes	Yes
ACPI-Ready Hardware • Advanced Configuration and Power Management Interface (ACPI). • It allows the system to wake from a low power mode. • It controls system power consumption, making it possible to place individual cards and peripherals in a low-power or powered-off state without affecting other elements of the system.	Yes	Yes
Dual-State Power Button • Power button acts as both an on/off button and suspend-to-sleep button.	Yes	Yes

Chassis		
Color	Carbonite/Silver	Carbonite/Silver
System Board Form Factors Supported	Standard uATX	Standard uATX
Cooling Solutions Supported	Yes	Yes
Power Supply Fan (Variable Speed)	Yes	Yes
Processor Fan-Heatsink (Variable Speed)	Yes	Yes
System Fan (Variable Speed)	Standard Front Headphone, Microphone, and (2) USB 2.0	Standard Front Headphone, Microphone, and (2) USB 2.0
Front I/O	Standard ATX I/O Connectors (6 USB 2.0, 1 VGA, 1 DVI-D, 1 Audio Out, 1 Audio In, 1 Microphone, 1 Serial, 1 Parallel, 2 PS2, 1 RJ-45)	Standard ATX I/O Connectors (6 USB 2.0, 1 VGA, 1 DVI-D, 1 Audio Out, 1 Audio In, 1 Microphone, 1 Serial, 1 Parallel, 2 PS2, 1 RJ-45)
Rear I/O	Yes	Yes
Internal Speaker	Kensington Cable Lock (optional)	Kensington Cable Lock (optional)
Security Locks Supported	Hood Cover Security Loop (standard but Lock not included)	Hood Cover Security Loop (standard but Lock not included)

Standard Features

Interfaces		
I/O Chip	SMSC LPC47B397 Super I/O	SMSC LPC47B397 Super I/O
Serial Port / UART Type	One Serial Port	One Serial Port
Parallel Port	One Parallel Port	One Parallel Port
USB	8 USB 2.0 ports (6 rear/2 front)	8 USB 2.0 ports (6 rear/2 front)
Infrared Port	No	No
Network	RJ-45	RJ-45
Keyboard	Yes (PS2 and USB)	Yes (PS2 and USB)
Mouse	Yes (PS2 and USB)	Yes (PS2 and USB)
Multibay	No	No
Video (VGA/DVI-D)	Yes/Yes	Yes/Yes
Audio	Yes	Yes

Unit Environment and Operating Conditions	Microtower	Slim Tower

General Unit Operating Guidelines

- Keep the computer away from excessive moisture, direct moisture and the extremes of heat and cold, to ensure that unit is operated within the specified operating range.
- Leave a 10.2 cm (4 in) clearance on all vented sides of the computer to permit the required airflow.
- Never restrict airflow into the computer by blocking any vents or air intakes.
- Do not stack computers on top of each other or place computers so near each other that they are subject to each other's re-circulated or preheated air.
- Occasionally clean the air vents on the front, back, and any other vented side of the computer. Lint, dust and other foreign matter can block the vents and limit the airflow.
- If the computer is to be operated within a separate enclosure, intake and exhaust ventilation must be provided on the enclosure, and the same operating guidelines listed above will still apply.

Power Supply		
Power Supply	250-watt ATX power supply - PFC 115v/230v line switch	200-watt ATX power supply - PFC 115v/230v line switch
Full Ranging Input (No Line Select Switch)	No	No
Active Power Factor Correction (APFC) (Input Current is nearly 1/2 a non-APFC PS)	No	No
Passive Power Factor Correction (PFC)	Yes (with line switch set to 230V - No PFC in 115V line switch position)	Yes (with line switch set to 230V - No PFC in 115V line switch position)
Operating Voltage Range	90 to 132VAC, or 180 to 264VAC	90 to 132VAC, or 180 to 264VAC
Rated Voltage Range	100 to 127VAC, or 200 to 240VAC	100 to 127VAC, or 200 to 240VAC
Rated Line Frequency	50-60 Hz	50-60 Hz
Operating Line Frequency Range	47-63 Hz	47-63 Hz
Rated Input Current	5A @ 100VAC/2.5A @ 200VAC	6A @ 115VAC/23.0A @ 230VAC
Maximum Rated Power	250 watt	200 watt
Heat Dissipation	Maximum 1260 BTU/hr, 317 kg-cal/hr Typical 256 BTU/hr, 65kg-cal/hr	Maximum 971 BTU/hr, 245kg-cal/hr, Typical 256 BTU/hr , 65kg-cal/hr
PS Fan	Variable speed fan	Variable speed fan
Processor Fan	Variable speed fan	Variable speed fan

Standard Features

Power Conservation 'Energy Saver'		
Energy Star Compliant	Yes	Yes
APM 1.2 Support	No	No
Screen Blanking	Yes	Yes
Hard Disk 'Idle' Mode	Yes	Yes
System Idle Mode	Yes	Yes
Cache Memory Power-Down	No	No
FEMP Standby Power Compliance (<2W in S5-Power Off)**	Yes	Yes
Blue Angel Compliant (<5w in S5--Power Off)	Yes	Yes
Power Consumption in ES Mode - Suspend to RAM (S3) (Instantly Available PC)	~2W	~2W
Processor/Cache Memory Power-Down (S3)	Yes	Yes
CD-Rom Spins Down when not in use	Yes	Yes
**NOTE: Power consumption in the Off/Apparent Off mode is measured and reported with the network interface controller "Wake on LAN" feature disabled in F10 Setup (default is "enabled").		

Client Management Solutions		
Client Management Solutions Home Page	http://h18000.www1.hp.com/im/	http://h18000.www1.hp.com/im/
HP Client Manager	Yes (via web download)	Yes (via web download)
Altiris Deployment Solution	Trial Version - 30 Days	Trial Version - 30 Days
Altiris Local Recovery	No	No
Plug and Play Ready	Yes	Yes

Boot Support		
Local Diskette Boot	Yes	Yes
Local CD Boot	Yes	Yes
Local USB Boot	Yes	Yes
Network Boot	Yes	Yes

After-Market Options

		MT	SFF	Part Number
Communications	NICs			
	Intel PRO/1000 GT Gigabit PCI (full height only)	X		AG393AA
	Intel Pro/1000 MT Gigabit Ethernet PCI Adapter (full height only)	X		DC193A
	Intel Pro/1000 MT Gigabit Ethernet PCI Adapter (low profile only)	X	X	DC193B
	Modem			
	Agere 56K PCI Modem	X	X	DC132D
Graphics		MT	SFF	Part Number
	ATI RADEON X300 SE 128MB DDR PCIE DVI w/TV	X	X	DY596A
	ATI RADEON X1300 256MB DDR PCIE DVI w/TV	X	X	AG392AA
Hard Drives	Serial ATA SMART III Hard Drives			
	80-GB SATA 3.0-Gb/s Hard Drive (7200 rpm)	X	X	PY276AA
	160-GB SATA 3.0-Gb/s Hard Drive (7200 rpm)	X	X	PY277AA
	250-GB ATA/100 Hard Drive (7200 rpm)	X	X	PY278AA
	Hard Drive Cables			
	Serial ATA Cable (required when adding a 2nd HDD)	X	X	DL977A
Input/Output Devices	Keyboards	MT	SFF	Part Number
	HP PS/2 2004 Standard Keyboard	X	X	DT527A
	HP USB 2004 Standard Keyboard	X	X	DT528A
	Pointing Devices			
	HP PS/2 2-Button Scroll Mouse (Carbonite)	X	X	DD440B
	HP PS/2 2-Button Optical Scroll Mouse	X	X	EY703AA
	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	X	X	DC172B
Memory (DIMMs)	400-MHz (PC3200) DDR DIMMs Non-ECC			
	256-MB DDR Synch DRAM PC3200 (DDR400)	X	X	DE466G
	512-MB DDR Synch DRAM PC3200 (DDR400)	X	X	DE467G
	1-GB DDR Synch DRAM PC3200 (DDR400)	X	X	DE468G

After-Market Options

Monitors	CRTs			
	HP s7540 17" (16.0" vis) CRT Monitor			PF997AA#ABA
	HP v7650 17" (16.0" vis) Flat-face CRT Monitor			PF996AA#ABA
	TFTs			
	HP L1506 15" TFT Flat Panel Monitor – Analog only			PX848AA#ABA
	HP L1706 17" TFT Flat Panel Monitor – Analog only			PX849AA#ABA
	HP L1740 17" TFT Flat Panel Display – Analog/Digital			PL766AA#ABA
	HP L1755 17" TFT Flat Panel Display – Analog/Digital			PL777AA#ABA
	HP L1906 19" TFT Flat Panel Display – Analog only			PX850AA#ABA
	HP L1940T 19" TFT Flat Panel Display – Analog/Digital			EM869AA#ABA
	HP L1955 19" TFT Flat Panel Display – Analog/Digital			PD974AA#ABA
	HP L2065 20" TFT Flat Panel Display – Analog/Digital			EF227A4#ABA
	HP LP2465 24" TFT Widescreen Flat Panel Display – Analog/Digital			EF224A4#ABA
	GSA Monitors			
	HP L717g 17" GSA Flat Panel Monitor			EE191AA#ABA
	HP L919g 19" GSA Flat Panel Monitor			EE192AA#ABA
	Options			
	HP Flat Panel Speaker Bar			EE418AA
	HP CRT Monitor Multimedia Base			PM552AA
Multimedia	HP Satellite Speakers	X	X	ZD929AA
	HP 16-in-1 Media Card Reader with PCI Card	X	X	EM718AA
Optical Drives	DVD-ROM Drive	MT	SFF	Part Number
	16X/48X DVD-ROM w/ +R read	X	X	PR596A
	CD-ROM Drive			
	48X Max CD-ROM Drive	X	X	DC143B
	CD-RW Drive			
	48X/32X/48X CD-RW Drive	X	X	DL975B
	Combo Drive			
	48X/32X Combo DVD-ROM/CD-RW Drive	X	X	DL976B
	DVD+R/+RW Drive			
	16X DVD+R/+RW Drive (LS/DL/DF)	X	X	PR595A

After-Market Options

Removable Storage	Drive Key Options	MT	SFF	Part Number
	256-MB HP Drive Key II (USB 2.0)	X	X	PH657A
	1-GB HP Drive Key II (USB 2.0)	X	X	AG382AA
	Diskette and Digital Drives			
	1.44-MB Internal Diskette Drive	X	X	DS710B
	Zip Drives and Media			
	Zip 250 Drive (Carbonite)	X	X	DC140B
	Zip 750 Drive (Carbonite)	X	X	DC518B

Security		MT	SFF	Part Number
	Security cable with Kensington lock	X	X	PC766A
	HP Business PC Security Lock Kit	X	X	EV265AA

Software		MT	SFF	Part Number
	HP Client Foundation Suite HP Client Manager HP Systems Insight Manager Connector Altiris Local Recovery Pro (not qualified on HP dx5150 Business PC) Altiris Migration Suite	X	X	EF117AA (use EF118AA for 1000+ licenses)
	HP Client Premium Suite HP Client Manager HP Systems Insight Manager Connector Altiris Local Recovery Pro (not qualified on HP dx5150 Business PC) Altiris Migration Suite Altiris Connector Solution Altiris Client Management Suite Level 1 HP OpenView Connector	X	X	EF119AA (use EF120AA for 1000+ licenses)

Miscellaneous Accessories		MT	SFF	Part Number
	IEEE 1394 PCI Card	X	X	PA997A

Brackets/Stands		MT	SFF	Part Number
	Tower Stand (Carbonite)		X	DE870A

Memory Controller is integrated in the Processor (Supports DDR I type memories up to PC3200 (400 Mhz)
DDR SYNCH DRAM DIMM NON-ECC MEMORY

The HP business desktop dx5150 PC has four memory DIMM slots and supports dual channel memory configurations. It is required to add memory in pairs; memory should be added in pairs and should be the same type. For example, 2x128-MB memory modules will perform better on some applications than 1x256-MB memory module because of the dual channel memory support on the dx5150.

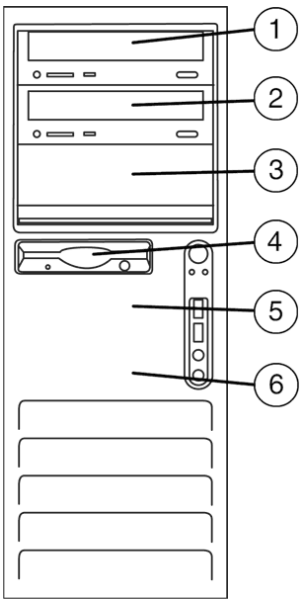
STANDARD MEMORY

Configurations can be selected with a 256-MB, 512-MB, 1024-MB, or 2048-MB memory. Memory types supported include PC3200 (DDR 400)

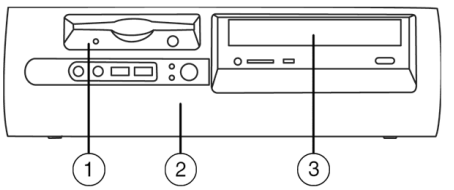
Various combinations of single-DIMM (for future upgradeability) and double-DIMM (for enhanced dual-channel memory performance) will be offered. There are four DIMM slots available. 2 Of them are black, and two of them are blue to indicate the two different channels. For best performance populate the DIMMs in pairs (Make sure to use identical memory DIMMs). Also, if only Two single sided matched pairs are used place them in the Black Slots. Refer to the dx5150 service guide or the Hardware reference guide for supported memory configurations.

Storage

Microtower



Small Form Factor



	Quantity Supported	Position Supported	Controller
Microtower			
Diskette Drive	2	3. 4	Diskette
or			
Media Reader			PCI card supplies internal USB 2.0 port
5.25" Storage Bays	2	1, 2	IDE
3.5" Storage Bay	2	5, 6	SATA
Small Form Factor			
Diskette Drive	1	1	Diskette
or			
Media Reader			PCI card supplies internal USB 2.0 port
5.25" Storage Bays	1	3	IDE
3.5" Storage Bay	1	2	SATA

ROM Features	Description	Microtower	Small Form Factor
Instantly Available PC (Suspend to RAM - S3)	Allows for very low power consumption with quick resume time	Yes	Yes
Replicated Setup	Saves BIOS settings to diskette or USB disk-on-key in human-readable file. Repset.exe utility can then replicate these settings on machines being deployed without entering ROM based F10 Setup	No	No
Remote System Installation via F12 (PXE)	Allows a new or existing system to boot over the network and download software, including the operating system, that is stored on a management server	Yes	Yes
Failsafe Boot Block ROM	—	Yes	Yes
Emergency ROM Flash Recovery (BootBlock)	User is alerted with audible tones and front panel LEDs only	Yes	Yes
Save and Restore CMOS Setup via Diskette	Tool will be available in the website	Yes	Yes
Auto Setup when New Hardware Installed	System automatically detects addition of new hardware (e.g. memory, floppy, etc.)	Yes	Yes
Serial, Parallel, USB Enable/Disable Port Control	Allows the user to enable or disable serial, parallel or USB ports	Yes	Yes
Removable Media Boot Control	Prevents the computer from being booted from removable media on supported devices (and can disable writes to media)	No	No
Remote Boot from Server	Allows a new or existing system to boot over the network and download software, including the operating system, that is stored on a management server	Yes	Yes
Keyboard-less boot-up	Allows for secured keyboard-less network operation	Yes	Yes
User Password	Prevents an unauthorized person from booting up the computer	Yes	Yes
Supervisor Password	Prevents an unauthorized person from changing the system configuration	Yes	Yes
Master Boot Record Security	Allows for detection of changes to MBR and optional restoration, useful in protecting from viruses	Yes	Yes
Power Management		Yes	Yes
ACPI Ready		Yes	Yes
SMBIOS (previously known a DMI)	System Management BIOS, previously known as DMI BIOS, for system management information	Yes	Yes
Keyboard-less Operation	The system can be operated without a keyboard	Yes	Yes
Remote ROM Flash	Provides secure, fail-safe ROM image management from a central network console	Yes	Yes
Remote Wakeup / Remote Shutdown	• Allow a system administrator to power on, restart, and power off a client computer from a remote location. • This enables cost-effective power consumption when the administrator needs to distribute software, perform security management, or update the ROM.	Yes	Yes
ROM Based Setup (F10) and Start-up Diagnostics		Yes	Yes
Acoustics: Advanced Power Management - On	Seated operator position	Idle (Hard drive spinning but not seeking) = 29dBA	Idle (Hard drive spinning but not seeking) = 29dBA

Technical Specifications

Unit Environment and Operating Conditions	Description	Microtower	Small Form Factor
Shock			
Operating (*Using 11-ms half-sine shock pulse)	6 faces,11 ms, 1/2 Sine, 10 shocks per face,5G during Read, 1G during Write (with no damage being incurred)	Yes	Yes
Non-Operating (*Using 11-ms half-sine shock pulse)	6 faces,2 ms < pulse duration < 3 ms (with no damage being incurred)	Yes	Yes
Vibration			
Operating	Random vibration at 10Hz to 500Hz, (0.25G's nominal)	Yes	Yes
Non-Operating	Random vibration at 10Hz to 500Hz, (0.5G's nominal)	Yes	Yes
Relative Humidity			
Operating (maximum wet bulb temp., non-condensing)	10°C - 35°C; 10% - 90% non condensing.	Yes	Yes
Non-operating (maximum wet bulb temp., non-condensing)	-30°C -90°C ;10%~95% R.H. non condensing.	Yes	Yes
Altitude Max (un-pressurized)			
Operating (Maximum allowable altitude change rate is 1500 ft/min.)	0 to 3,048 meters/10,000 feet - This value may be limited by the type and number of options installed.	Yes	Yes
Non-operating (Maximum allowable altitude change rate is 1500 ft/min.)	0 to 9144meters/30,000 feet - This value may be limited by the type and number of options installed.	Yes	Yes

Initial Configuration and Deployment	Description	Microtower	Small Form Factor
Replicated Setup	Saves BIOS settings to diskette. A Windows or DOS based utility can replicate these settings on machines being deployed without entering ROM based F10 Setup.	Yes, utility available on HP.com	Yes, utility available on HP.com
Support Software CD	—	Yes	Yes
HP Software Restore CD	Allows the computer to be restored to its original factory shipping image		
Altiris Deployment Solutions (30-day trial version)	A suite of solutions that focus on business needs in four areas, saving time and freeing resources to address other crucial issues: • Deployment & Migration • Software & Operations Management • Inventory & Asset Management • Help Desk & Problem Resolution	Yes	Yes
Asset Tag	• Intended to be used as a repository for storing company-specific property asset numbers for easy tracking • Initially set equal to the system serial number • Stored in a protected section of non-volatile memory which can be accessed and modified with the F10 Setup program	Yes	Yes

DIMM Serial Presence Detect	Detects whether or not memory DIMMs are present and their type	No	No
Hard drive serial number, model, and manufacturer	Hard drive manufacturer, model, and serial number is stored in the hard drive firmware and reported in ROM based F10 setup	No	No
Monitor serial number, model & manufacturer	—	No	No
System serial number, model, & manufacturer	System serial number, model, & manufacturer stored in a non-volatile memory and can be retrieved with management software or viewed in ROM based F10 setup	Yes	Yes
ROM revision levels	• System ROM revision levels are identified by a version number (xx.yy) and reported in ROM based F10 Setup • Version is stored in an industry standard memory location (SMBIOS) so that management SW applications can use and report this information	Yes	Yes
System board revision level	• Allows management SW to read the revision level of the system board • Revision level is digitally encoded into the hardware and cannot be modified	Yes	Yes
Memory Change Alert (Intelligent Manageability needed to work)	Alerts management console if memory is removed or changed	Yes	Yes

Security Features of Chassis	Description	Microtower	Small Form Factor
Solenoid Hood Lock	—	No	No
Hood Sensor	—	No	No
Kensington Lock Support	—	Yes	Yes
Cable Lock Provision	Allows the user to physically secure computer hardware from theft via a loop on the chassis. With lock installed, this loop also prevents the hood from being removed.	Yes	Yes
Serial, Parallel, USB Enable/Disable	Allows the user to enable or disable serial, parallel or USB ports and hide them from the operating system	Yes	Yes
Port Control	Device which attaches to back of chassis covering external ports and thereby preventing unauthorized access; also aids in cable management	No	No
Removable Media Write / Boot Control	Prevents the computer from being booted from removable media on supported devices (and can disable writes to media)	No	No
Power-On Password	Prevents an unauthorized person from booting up the computer	Yes	Yes
Setup Password	Prevents an unauthorized person from changing the system configuration	Yes	Yes
SmartCard Reader	Security device that prevents system access into the operating system unless the user has the appropriate Smartcard	No	No
SMART Hard Drives, Fault Notification, & Prefailure Warranty	• Allows hard drives to monitor their own health and to raise flags if imminent failures were predicted • Predicts failures before they occur. Tracks fault prediction and failure indication parameters such as re-allocated sector count, spin retry count, calibration retry count • By helping users avoid actual hard drive failures, SMART hard drives act as "insurance" against unplanned user downtime and potential data loss from hard drive failure	Yes	Yes
Surge Tolerant Full Ranging Power Supply	Withstands power surges up to 2000V	Yes	Yes

Ultra ATA Integrity Monitoring (CRC Checking)	• Provides data transfer verification.
	• Provides proactive notification of hard drive data transmission problems and recommendations for enhancing system performance
	• Detects all the following errors types:
	  ○ single bit errors
	  ○ double bit errors
	  ○ an odd number of errors
	  ○ error bursts up to 32-bits long
		Yes	Yes

Integrated SATA RAID Controller	RAID-0/1. User-configurable with matching 2nd HDD configuration	Yes	Yes
Support Software CD & website	www.hp.com/support	Yes	Yes

Serviceability Features of System	Description	Microtower	Small Form Factor
Dual Color Power LED on Front of Computer	Indicates normal operations and fault conditions	Yes	Yes
Blinking Power LED Codes	Allows for easy problem resolution	Yes	Yes
Diagnostic LED Explanation Table	Number of 1-second blinks (red LED) Diagnosis - followed by a 2 second pause/ repeat: 2 = Processor Thermal Protection Activated 3 = Processor not installed 4 = Power Supply Failure 5 = Memory Error 6 = Video Error 7 = PCA failure (ROM detected failure prior to video) 8 = Invalid ROM, bootblock recover mode	Yes	Yes
Emergency ROM Flash Recovery	—	Yes	Yes
Compaq Diagnostic for Windows Software (web download)	—	Yes	Yes
System Shutdown at Over-Temp	—	Yes	Yes
HP OS CD (Restore OS CD)	Allows the computer to be restored to its original factory shipping image	Yes	Yes
HP Restore CD (Restores Drivers CD)	Allows the computer to be restored to its original factory shipping image	Yes	Yes
Flash ROM	—	Yes	Yes
5V Aux Power LED on System PCA	—	Yes	Yes
Diagnostic Power Switch LED on board	—	Yes	Yes
Clear Password Jumper	—	Yes	Yes
Clear CMOS Button	—	Yes	Yes
CMOS Battery Holder for easy Replacement	—	Yes	Yes
Processor ZIP Socket for easy Upgrade	—	Yes	Yes
DIMM Connectors for easy Upgrade	—	Yes	Yes

NIC LEDs (integrated) (Green & Amber)	Used to determine NIC status	Yes	Yes

Serviceability Features	Description	Microtower	Small Form Factor
Tool-less PCI Card Removal	—	No	Yes
Tool-less PCI-E Card Removal	—	No	Yes
Dual Color Power LED	Indicates Normal Operations and Fault Conditions	Yes	Yes
Diagnostic LED Explanation Table	—	Yes	Yes
Emergency ROM Flash Recovery	—	Yes	Yes
Solenoid Hood Lock	Remote operated system lock	No	No
Green Pull Tabs, and Quick Release Latches for easy Identification	—	Yes	Yes
System memory can be upgraded without removing the system board or any internal components	Eases memory upgrading	Yes	Yes
Tool-less Hood Removal	Eases entry to the chassis without use of special tools	Yes	Yes
Tool-less Hard Drive, CD & Diskette Removal	No special tools required for removal of devices in the 3.5" and 5.25" bays	Yes	Yes
Tool-less System Board Removal	No special tools required for system board removal	No	No
Industry-standard CD Bay	—	Yes	Yes
Drive Self Tests (DPS)	• Drive Protection System • A diagnostic hard drive self test. It scans critical physical components and every sector of the hard drive for physical faults and then reports any faults to the user. • Running independently of the operating system, it can be accessed through a Windows-based diagnostics utility or through the computer's setup procedure. It produces an evaluation on whether the hard disk drive is the source of the problem and needs to be replaced. • The system expands on the Self-Monitoring, Analysis, and Reporting Technology (SMART), a continuously running systems diagnostic that alerts the user to certain types of failures	Yes	Yes
DPS Access through F10 Setup during Boot		Yes	Yes
SMART Technology (Self-Monitoring, Analysis and Reporting Technology)	• Allows hard drives to monitor their own health and to raise flags if imminent failures were predicted • Predicts failures before they occur. Tracks fault prediction and failure indication parameters such as re-allocated sector count, spin retry count, calibration retry count • By helping users avoid actual hard drive failures, SMART hard drives provide protection against unplanned user downtime and potential data loss from hard drive failure	Yes	Yes
SMART I - Drive Failure Prediction		Yes	Yes
SMART II - Off-Line Data Collection		Yes	Yes
SMART III - Off-Line Read Scanning with Defect Reallocation		Yes	Yes

RoHS Compliance	Hewlett-Packard is committed to compliance with all applicable environmental laws and regulations, including the European Union Restriction of Hazardous Substances (RoHS) Directive. HP's goal is to exceed compliance obligations by meeting the requirements of the RoHS Directive on a worldwide basis. By July 1, 2006, RoHS substances will be virtually eliminated (virtually = to levels below legal limits) for all HP electronic products subject to the RoHS Directive, except where it is widely recognized that there is no technically feasible alternative (as indicated by an exemption under the EU RoHS Directive). Prior to this date, customers interested in purchasing RoHS compliant product should contact their local HP sales or distribution office to determine specific configuration status.

Service and Support	On-site Warranty and Service Note 1:This three-year (3-1-1), limited warranty and service offering delivers three years of parts and one year of both labor and on-site repair. Response time is next business-day Note 2: and includes free telephone support Note 3: 24 x 7. Global coverage Note 2: ensures that any product purchased in one country and transferred to another non-restricted country will remain fully covered under the original warranty and service offering. Some countries/regions do not offer one year onsite and labor.
	NOTE 1: Terms and conditions may vary by country. Certain restrictions and exclusions apply.
	NOTE 2: On-site service may be provided pursuant to a service contract between HP and an authorized HP third-party provider, and is not available in certain countries. Global service response times are based on commercially reasonable best effort and may vary by country.
	NOTE 3: Technical telephone support applies only to HP-configured, HP and HP-qualified, third-party hardware and software. Toll-free calling and 24 x 7 support may not be available in some countries.

AC97 Integrated Realtek ALC655 Audio	Type	Integrated
	AC '97 Stereo Codec	Yes
	FM Synthesis Support	Yes – Yamaha XG Lite
	OPL3 FM Synthesis Support	Yes
	Sound Blaster Compatibility	Yes
	Audio Jacks	Microphone-In (20-K ohm Input Impedance); rear stereo and front analog microphone ports available except for USDT which has front stereo microphone only Line-In (12-K ohm Input Impedance) Line-Out * (less than 800 ohms Output Impedance, expects at least a 10-K ohm load) Headphone-Out (2.5 Ohms Output Impedance, expects at least a 32-ohm load)
	NOTE: *Internal Speaker Amplifier is for Internal Speaker only. External Speakers need to be powered externally.	
	Sampling	7 kHz – 48 kHz
	Wavetable Syntheses (software)	Yes – GM and FM Midi Support, Direct Music and Down Loadable Soundset (4 Meg DLS Level 1 and 2 Support)
	3D Positional Sound	No
	Digital Audio	Yes
	Analog Audio	Yes
	Number of Channels on Line-Out (mono/stereo)	Stereo (Left & Right channels)
	Internal Audio Speaker Power Rating	3W
	Internal Speaker	Yes
	Hardware Equalizer for Internal Speaker	Fixed 7 Band ParametricEQ
	External Speaker Jack (Line-Out)	Yes

Technical Specifications - Communications

Broadcom NetXtreme Gigabit Ethernet LAN on Motherboard (LOM)	**Connector**	RJ-45
	Controller	Broadcom 5751 PCI-Express LAN Controller
	Memory	Integrated 72KByte frame buffer memory
	Network data rates supported	10Mbps-Half Duplex, 10Mbps-Full Duplex/100Mbps-Half Duplex, 100Mbps Full Duplex /1000Mbps
	Compliance	IEEE 802.1A, 802.1P, 802.1P, 802.1Q, 802.2, 802.3, 802.3AB and 802.3u compliant, 802.3x flow control
	Bus architecture	PCI-Express 1.0a
	Data path width	x1
	Data transfer mode	Bus-master DMA
	Hardware certifications	FCC, B, CE, TUV- cTUVus Mark Canada and United States, TUV- GS Mark for European Union
	Power requirement	1.45 watts maximum
	Boot ROM support	Yes
	LEDs	2; #1 on for link and flashes off for activity; #2 green for 1000Mbps, yellow for 100Mbps, off for 10Mbps
	Auto MDI-X	Automatic MDI crossover is supported (eliminates need for crossover cables)
	Statistics	SNMP MIB II, Ethernet-like MIB, and Ethernet MIB (802.3z Clause 30)
	Teaming	Supported (additional NICs required)
	Package	196-pin BGA
	Environmental	Operating temperature 32° to 131°F (0° to 55° C)
		Operating humidity 85% at 131° F (55° C)
	Dimensions	0.59 x 0.59 in (15 x 15 mm)
	Operating system driver support	Microsoft Windows 2000, Microsoft Windows XP, Linux
	Management capabilities	ACPI, WoL and DMI 2.0, PXE 2.0, WfM 2.0, Broadcom mgmt utility
	Alerting	ASF 1.1
Intel PRO/1000 GT Gigabit PCI NIC	**Connector**	RJ-45
	Controller	Intel 82541PI Gigabit Controller
	Memory	Integrated 64KB configurable transmit receive buffer memory
	Data rates supported	10/100/1000 Mbps
	Compliance	IEEE 802.1P, 802.1Q, 802.2, 802.3, 802.3AB and 802.3u compliant, 802.3x flow control
	Bus architecture	PCI 2.3
	Data path width	32-bit, 33/66 MHz bus interface
	Data transfer mode	Bus-master DMA
	Hardware certifications	FCC, B, CE, TUV- cTUVus Mark Canada and United States, TUV- GS Mark for European Union
	Power requirement	(800mA) 4watts @ +5VDC
	Boot ROM support	Yes

Technical Specifications - Communications

Network transfer rate	10BASE-T (half-duplex) 10 Mbps 10BASE-T (full-duplex) 20 Mbps 100BASE-TX (half-duplex) 100 Mbps 100BASE-TX (full-duplex) 200 Mbps 1000BASE-T (full-duplex) 2000 Mbps (actual rate limited by PCI Bus)	
Environmental	Operating temperature	32° to 131°F (0° to 55° C)
	Operating humidity	85% at 131° F (55° C)
Dimensions	6.4 x 4.8 x 0.8 in (16.3 x 12.1 x 1.9 cm)	
Operating system driver support	Microsoft Windows NT 4.0, Microsoft Windows 98, SE, Me, Microsoft 2000, Microsoft XP, Linux 2.2, Linux 2.4	
Management capabilities	ACPI, WOL and DMI 2.0, S5 WOL, WMI, PXE 2.0, RPL	

2006 Agere PCI 56K International SoftModem	Data Transmission	Technology speeds: 56,000 Kbps maximum downstream data, controllerless NOTE: 56 Kbps technology refers to download speeds only and requires compatible modems at server sites. Other conditions may limit modem speed. FCC limitations allow a maximum of 53 Kbps during download transmissions.
	Data Speeds	(Upload only) 33,600/31,200/28,800/26,400/21,600/19,200/16,800/14,400/12,000/9,600/7,200/4,800/2,400/1,200/300
	Data Standards	ITU-T V.90, ITU-T, ITU-T V.34, V.44, V.42, V.42bis21, V.32bis, Bell 212A, and Bell 103
	Fax Speeds	14,400/12,000/9,600/7,200/4,800/2,400/1,200/300 b/s
	Fax Mode Capabilities	ITU-T T.31 class 1 FAX, V. 17, V.29, V.27ter, and V.21 Channel 2
	Error Correction and Data Compression	V.44, 42bis, V.42 and MNP2-5
	Power Management	ACPI; PPMI 1.1 and wake support with PME and Vaux; meets PCI 2.3 requirements and PC 2001 requirements
	Upgradeability	Driver upgradeable for future enhancements
	Video	ITU-T V.80 video ready interface
	Other	TIA/EIA 602 standard AT command set Integrated DTE interface with speeds of up to 115.2 Kbps, parallel 16550a UART-compatible interface Optional ring wakeup signal
	Operating Temperature	32° to 158° F (0° to 70° C)
	Operating Humidity	20% to 90%, non-condensing
	Operating System Support	Microsoft Windows 2000 and Microsoft Windows XP
	OS Driver Support	Microsoft Windows 2000 and Microsoft Windows XP
	Power	Requires a 3.3-V auxiliary power rail on PCI bus Uses only one PCI load (i.e., one grant/request pair), one shared IRQ, one electrical load
	Chipset	Agere Systems SV92PL – Integrated PCI interface with 5-V tolerant buffers and CardBus support
	Dimensions (L X H)	Complies with PCI low profile specifications-6.7 x 2.3 in (17.0 x 5.8 cm) and supports high- and low-profile brackets
	Connection	Single RJ-11 connector

Technical Specifications - Communications

Other Features	Digital line protection, call progress monitoring via on-board piezo device, support for high profile and low profile brackets, PnP ID support
Safety	UL recognized to UL 1950, 3rd edition (U.S. and Canada); IEC 950 (TUV, NEMKO, DEMKO, SEMKO); CE Mark, EC 950 (TUV, NEMKO, DEMKO, SEMKO, CE mark
EMC	FCC Part 15, IC ES003, EN 55022, 3rd edition, EN 55024, annex A, EN 61000-4-6, EN 61000-4-8
Telecom	FCC Part 68, IC-CS-03 (Canada); Worldwide PTT approvals Not available in Korea or the Republic of South Africa.
Health	Bare PCB material compliant to 94V-0 or better (marked as such)
Other	PC 2001 compliant, PCI version 2.3, WHQL approved; ACPI compliant

Integrated Radeon X300 based graphics (ATI Radeon Xpress 200M chipset)	**3D/2D Controller**	Full Microsoft DirectX® 9 based with Shader 2.0 support, full precision floating point pixel pipeline, 2x, 4x, or 6x Anti-Aliasing, hidden surface removal using 16, 24, or 32-bit Z-Buffering, and support for 12-bit per pixel formats. Support for Microsoft's DirectDraw, Double Buffering, Virtual Sprites, Transparent Blit, and Masked Blit.
	VGA/DVI Controller	Integrated
	Bus Type	PCI Express™ x16 for optional graphics upgrade.
	RAMDAC	Integrated
	Memory	HYPERMEMORY™ technology offers optional dedicated Local Frame Buffer configuration for a 32-bit or 64-bit interface and up to 128MB of memory. UMA mode operation uses from 32MB up to 256MB of shared system memory.
	Controller Clock Speed	300 MHz
	Overlay Planes	Back end overlay supporting Motion Adaptive De-Interlacing
	Maximum Color Depth	32 bits/pixel
	Maximum Vertical Refresh Rate	Supports resolutions up to 2045x1536 @ 32bpp.
	Multi-display Support	SURROUNDVIEW™ support for up to four monitors with an ATI discrete graphics card. Up to 2 displays can be supported via the motherboard's VGA and DVI-D connectors. An additional 2 displays can be supported via the ATI discrete graphics card. Dual independent display modes are supported.
	Operating Systems	Microsoft Windows XP and Windows 2000
	Graphics/Video API Support	Microsoft DirectX 9, DirectXVA®, VMR7, VMR9, GDI/GDI+; OpenGL® 1.4.

ATI Radeon x300 SE PCI Express Graphics Accelerators (64 MB and 128 MB)	**Dimensions** (H x W)	6.6 x 2.7 in (16.77 x 6.89 cm)	
	Weight	4.2 oz (119 g)	
	Bus Type	PCI Express (x16 lanes)	
	Maximum Vertical Refresh Rate	85 Hz	
	Display Support	Integrated 400MHz RAMDAC	
	Display Max Resolution	2048 x 1536	
	Board Display Options	**64 MB Card Display Option**	**128 MB Card Display Option**
		VGA + TV VGA supports analog CRT or flat panel.	DVI-I + TV DVI-I supports analog CRT or flat panel or digital flat panel (using DVI-A, DVI-D or DVI-I connector) DVI-I supports analog CRT or flat panel (with VGA connector and DVI-I to VGA dongle)
		TV Connector is a 7-pin mini-DIN (also allowing 4-pin S-Video without adaptor)	TV Connector is a 7-pin mini-DIN (also allowing 4-pin S-Video without adaptor)

Technical Specifications - Graphics

Board Configuration 64 MB Frame Buffer	Specification	Description
	Graphics Chip	RADEON X300 SE PCI Express
	Core clock	325 MHz
	Memory clock	200 MHz
	Frame buffer	64 MB DDR
	Memory I/O	64 bit
	Memory Configuration	4 pcs 8Mx16 DDR
Board Configuration 128 MB Frame Buffer	**Specification**	**Description**
	Graphics Chip	RADEON X300 SE PCI Express
	Core clock	200 MHz
	Memory clock	200 MHz
	Frame buffer	128 MB DDR
	Memory I/O	64 bit
	Memory Configuration	4 pcs 16M x 16 DDR

Memory type	DDR1
Maximum memory	128 MB
Operating Temperature	50° to 122° F (10° to 50° C)
Languages Supported	24 languages: English, Arabic, Chinese Simplified, Chinese Traditional, Czechoslovakian, Danish, Dutch, Finnish, French, German, Greek, Hebrew, Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Russian, Spanish, Swedish, Thai, Turkish
Operating systems support	Windows 2000, Windows XP, Linux Xfree86. (Windows 98, ME and Windows NT 4.0 also with limited support). Future MS Longhorn™ support is planned
Voltage	1.2 V and 1.8 V power rails used for PCI Express.
Core Power	10 W (Max ASIC power) 18 W (Max Board power)
Option Kit Contents	• ATI RADEON X300 SE PCI Express graphics card with full height bracket attached • Low profile bracket • Software CD with graphics drivers • Warranty documentation

	Compliance Standards	EMC Emissions: a) FCC Part 15, Subpart B – Unintentional Radiators, Class B Computing Devices for Home & Office Use b) CISPR22: 1997/EN 55022:1998 – Class B – Limits and methods of measurement of radio disturbance characteristics of Information Technology Equipment c) Canadian Standard ICES-003 is equivalent to CISPR22 d) Taiwanese Standard BSMI – if specified e) Japanese VCCI – if specified f) Australian C-Tick – if specified EMC Immunity: CISPR 24:1997/EN 55024:1998 – Information Technology Equipment – Immunity Characteristics – Limits and Methods of Measurement Safety: UL 60950 (USA) & EN 60950 (EU): Safety of Information Technology Equipment, Including Electrical Business Equipment. All boards meet UL PCB flammability requirements.
ATI RADEON X1300 PCIe Graphics Card (256 MB)	Bus Type	PCI Express (x16 lanes)
	Maximum Vertical Refresh Rate	85 Hz
	Display Support	Integrated 400 MHz RAMDAC
	Display Max Resolution	2048 x 1536
	Board display options	DVI-I + TV DVI-I supports analog CRT or flat panel or digital flat panel (using DVI-A, DVI-D or DVI-I connector) DVI-I supports analog CRT or flat panel (with VGA connector and DVI-I to VGA dongle) TV connector is a 4-pin mini-DIN S-video connector
	Board Configuration	Specification: Description Graphics Chip: RV515 Core clock: 450 MHz Memory clock: 250 MHz Frame buffer: 256 MB DDR2
	Languages Supported	24 languages: English, Arabic, Chinese Simplified, Chinese Traditional, Czechoslovakian, Danish, Dutch, Finnish, French, German, Greek, Hebrew, Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Russian, Spanish, Swedish, Thai, Turkish
	Operating Systems Support	Windows 2000, Windows XP, Linux x86 and x86_64 distributions using XFree86 or X.Org*. *Linux drivers are available from ATI's website and may be available in a Linux distribution. Refer to the Open Source and Linux from HP website (http://www.hp.com/wwsolutions/linux/products/clients/) for support information.
	Core Power	25 W (Max board power)

	Option Kit Contents	• ATI RADEON X1300 PCIe graphics card with full height bracket attached • Low profile bracket • DVI-to-VGA Adapter • Software CD with graphics drivers • Warranty documentation
	Compliance Standards	EMC Emissions: a) FCC Part 15, Subpart B - Unintentional Radiators, Class B Computing Devices for Home & Office Use b) CISPR22: 1997/EN 55022:1998 – Class B – Limits and methods of measurement of radio disturbance characteristics of Information Technology Equipment c) Canadian Standard ICES-003 is equivalent to CISPR22 d) Taiwanese Standard BSMI e) Japanese VCCI f) Australian C-Tick EMC Immunity: CISPR 24:1997/EN 55024:1998 – Information Technology Equipment – Immunity Characteristics – Limits and Methods of Measurement. Safety: UL 60950 (USA) & EN 60950 (EU): Safety of Information Technology Equipment, Including Electrical Business Equipment. All boards meet UL PCB flammability requirements.
ATI RADEON X1600XT (256 MB DH) FH PCIe Graphics Card	Bus Type	PCI Express (x16 lanes)
	Maximum Vertical Refresh Rate	85 Hz
	Display Support	Integrated 400 MHz RAMDAC
	Display Max Resolution	2560 x 1600 digital, 2048 x 1536 analog
	Board Display Options	2 DVI-I ports (one port supports dual link DVI). DVI-I supports an analog CRT or flat panel with a VGA connector via the provided DVI-I to VGA adapter 4-pin mini-DIN S-video connector for TV output
	Board Configuration	Specification: Description Graphics chip: RV530 Core clock: 590 MHz Memory clock: 690 MHz Frame buffer: 256 MB GDDR3, 128 bit wide
	Operating Systems Support	Windows 2000, Windows XP
	Core Power	56 W (Max board power)

7200 rpm Serial ATA Hard Drives	40-GB	Capacity	40,020,000,000 bytes	
		Height	1 inch (2.54 mm)	
		Width	Media diameter: 3.5 in (8.89 cm) Physical size: 4 in (10.2 cm)	
		Interface	Serial ATA	
		Synchronous Transfer Rate (Maximum)	1.5 Gb/s	
		Buffer	2 MB	
		Seek Time (typical reads, includes controller overhead, including settling)	Single Track	1.0 ms
			Average	8.5 ms
			Full-Stroke	18.0 ms
		Rotational Speed	7,200 rpm	
		Logical Blocks	78,165,360	
		Operating Temperature	32° to 140° F (0° to 60° C)	
	80-GB	Capacity	80,026,361,856 bytes	
		Height	1 in (2.54 cm)	
		Width	Media diameter: 3.5 in (8.89 cm) Physical size: 4 in (10.2 cm)	
		Interface	Serial ATA (3.0 Gb/s)	
		Synchronous Transfer Rate (Maximum)	Up to 3 Gb/s	
		Buffer	8 MB	
		Seek Time (typical reads, includes controller overhead, including settling)	Single Track	2.0 ms
			Average	9.3 ms
			Full-Stroke	21 ms
		Rotational Speed	7,200 rpm	
		Logical Blocks	156,301,488	
		Operating Temperature	41° to 131° F (5° to 55° C)	

Technical Specifications - Hard Drives

160-GB	Capacity	163,928,604,672 bytes	
	Height	1 in (2.54 cm)	
	Width	Media diameter: 3.5 in (8.89 cm) Physical size: 4 in (10.2 cm)	
	Interface	Serial ATA (3.0 Gb/s)	
	Synchronous Transfer Rate (Maximum)	Up to 3 Gb/s	
	Buffer	8 MB	
	Seek Time (typical reads, includes controller overhead, including settling)	Single Track	0.9 ms
		Average	9.3 ms
		Full-Stroke	18 ms
	Rotational Speed	7,200 rpm	
	Logical Blocks	320,173,056	
	Operating Temperature	41° to 131° F (5° to 55° C)	
250-GB	Capacity	250,059,350,016 bytes	
	Height	1 in (2.54 cm)	
	Width	Media diameter: 3.5 in (8.89 cm) Physical size: 4 in (10.2 cm)	
	Interface	Serial ATA (3.0 Gb/s)	
	Synchronous Transfer Rate (Maximum)	Up to 3 Gb/s	
	Buffer	8 MB	
	Seek Time (typical reads, includes controller overhead, including settling)	Single Track	1.0 ms
		Average	8.5 ms
		Full-Stroke	18 ms
	Rotational Speed	7,200 rpm	
	Logical Blocks	488,397,168	
	Operating Temperature	41° to 131° F (5° to 55° C)	

Technical Specifications - Input/Output Devices

Standard Keyboard (PS/2 or USB)	Physical characteristics	Keys	104, 105, 106, 107, 109 layout (depending upon country)
		Dimensions (L x W x H)	18.0 x 6.4 x 0.98 in (45.8 x 16.3 x 2.5 cm)
		Weight	2 lb (0.9 kg) minimum
	Electrical	Operating voltage	+ 5VDC ± 5%
		Power consumption	50-mA maximum (with three LEDs ON)
		System interface	USB Type A plug connector
		ESD	CE level 4, 15-kV air discharge
		EMI - RFI	Conforms to FCC rules for a Class B computing device
		Microsoft PC 99 - 2001	Functionally compliant
	Mechanical	Languages	38 available
		Keycaps	Low-profile design
		Switch actuation	55-g nominal peak force with tactile feedback
		Switch life	20 million keystrokes (using Hasco modified tester)
		Switch type	Contamination-resistant switch membrane
		Key-leveling mechanisms	For all double-wide and greater-length keys
		Cable length	6 ft (1.8 m)
		Microsoft PC 99 - 2001	Mechanically compliant
		Acoustics	43-dBA maximum sound pressure level
	Environmental	Operating temperature	50° to 122° F (10° to 50° C)
		Non-operating temperature	-22° to 140° F (-30° to 60° C)
		Operating humidity	10% to 90% (non-condensing at ambient)
		Non-operating humidity	20% to 80% (non-condensing at ambient)
		Operating shock	40 g, six surfaces
		Non-operating shock	80 g, six surfaces
		Operating vibration	2-g peak acceleration
		Non-operating vibration	4-g peak acceleration
		Drop (out of box)	26 in (66 cm) on carpet, six-drop sequence
		Drop (in box)	42 in (107 cm) on concrete, 16-drop sequence
	Operating system support	Windows 2000 and Windows XP	
	Approvals	UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, MIC	
	Ergonomic compliance	ANSI HFS 100, ISO 9241-4, and TUVGS	

Technical Specifications - Input/Output Devices

2-Button Scroll Mouse (PS/2 or USB)	Scroll Wheel	8 mm	
	Maximum Rotation Speed	30 mm/s	
	Switch Type	Light force micro-switch	
	Switch Life	1 million operations	
	Mechanical Life	Minimum 200,000 revolutions	
	Environmental	Operating Temperature	50° to 122° F (10° to 50° C)
		Non-operating Temperature	-22° to 140° F (-30° to 60° C)
		Operating Humidity	10% to 90% (non condensing at ambient)
		Non-operating Humidity	20% to 80% (non condensing at ambient)
		Operating Shock	40 g, 6 surfaces
		Non-operating Shock	80 g, 6 surfaces
		Operating Vibration	2 g peak acceleration
		Non-operating Vibration	4 g peak acceleration
	Electrical	Operating Voltage	+ 5VDC ± 10%
		Power Consumption	15mA
		System Consumption	PS/2 mini-din connector
		ESD	CE level 4, 15 kV air discharge
		EMI-RFI	Conforms to FCC rules for a Class B computing device
		PC98	Functionally compliant
	Mechanical	Resolution	400 ± 20% DPI
		Tracking Speed	10 in/s maximum
		Acceleration	100 in/s
		Switch Actuation	85 g nominal peak force
		Switch Life	1,000,000 operations (using Hasco modified tester)
		Cable Length	2 m
		PC98-99	Mechanically compliant
	Regulatory Approvals	UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BCIQ, C-Tick	

Technical Specifications - Input/Output Devices

HP PS/2 Optical Scroll Mouse	Dimensions (H x L x W)	3.95 x 6.21 x 11.7 cm (1.56 x 2.44 x 4.61 in)	
	Weight	4.44 oz (126 g)	
	Environmental	Operating temperature	-32° to 104°F (0° to 40° C)
		Non-operating temperature	-4° to 140°F (-20° to 60° C)
		Operating humidity	10% to 90% (non condensing at ambient)
		Non-operating humidity	10% to 90% non condensing
		Operating shock	40 g, 6 surfaces
		Non-operating shock	80 g, 6 surfaces
		Operating vibration	2 g peak acceleration
		Non-operating vibration	4 g peak acceleration
		Drop (out of box)	80 cm height onto asphalt tile over concrete or equivalent, 5-drop in 5 direction except the cable face
	Electrical	Operating voltage	5 VDC ± 10%
		Power consumption	100mA
		System consumption	PS/2 mini-din connector
		ESD	CE level 4, 15 kV air discharge
		EMI-RFI	Conforms to FCC rules for a Class B computing device
		Microsoft PC99 – 2001	Functionally compliant
	Mechanical	Resolution	400 ± 20% DPI
		Tracking speed	10 in/s (25.4 cm/s) maximum
		Acceleration	100 in/s/s (2.54 m/s/s)
		Switch actuation	61 g nominal peak force
		Switch life	3,000,000 operations (using Hasco modified tester)
		Switch type	Low force micro-switches
		Tracking mechanism life	155 mi (250 km) at average speed of 10 in/s
		Cable length	6 ft (1.8 m)
		Microsoft PC99 – 2001	Mechanically compliant
	Scroll wheel	Width	8 mm
		Diameter	1.01 in (25.6 mm)
		Maximum rotation speed	48 rats/sec
		Switch type	Light force micro-switch
		Switch life	1 million operations
		Mechanical life	Minimum 200,000 revolutions
	Regulatory approvals	Compliant	UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, MIC
	Compatibility	Operating system support	Microsoft Windows Me, Windows 2000 and Windows XP

Technical Specifications - Optical Storage

48X Max CD-ROM Drive	**Interface**	ATAPI IDE	
	Data Buffer	16.6 Mbps	
	Data Transfer Rate	Sustained—150 Kbps minimum (audio)	Variable (CD)—3,000 to 7,200 Kbps
	Disk Rotation Technology	CAV (Constant Angular Velocity)	
	Access Time (ms)	Random: <100 ms	Full-stroke seek: <150 ms
	Average Access Time	< 80 ms	
	Cache Buffer (standard/maximum)	128 KB	
	Disk Formats Read	Multi-session Photo CD, multi-read CD-ROM, CD text, audio CD, CD-I, CD-RW, CD-R, CD-Extra, CD-ROM XA	
	Disk Formats Written	None	
	Disk Capacity (CD)	650 MB	
	Block Size	Mode 1 – 2,048 bytes	
		Mode 2 – 2,340/2,336 bytes	
		CD-DA – 2,352 bytes	
		CD-XA – 2,328 bytes	
	Diameter	12 cm; 8 cm	
	Thickness	1.2 mm	
	Track Pitch	1.6 µm	
	Audio Output Level	Line-out—0.7 V @ 47 Kohm	Headphone—0.6 V @ 32 ohm
	Startup Time	<7 seconds (typical); < 30 seconds with multi-session	
	Operating Conditions	Temperature	41° to 113° F (5° to 45° C)
		Relative Humidity	10% to 80%
	Dimensions (H x W x D, maximum)	1.7 x 5.9 x 8.2 in (4.3 x 15.0 x 20.8 cm)	
	Weight	2.6 lb (1200 g)	
	Operating Systems Supported	Microsoft Windows NT 4.0, Microsoft Windows 2000, and Microsoft Windows XP	
	MPEG Playback Graphics Solution Support	None	

48X/24X/48X CD-RW Drive	**Orientation**	Either horizontal or vertical
	Disc Loading Mechanism	Half-height, tray load
	Interface Type	ATAPI IDE
	Dimensions—external (W x H x D)	7.99 x 5.88 x 1.71 in (203 x 149.5 x 43.5 mm)
	Weight	2.6 lb (1.2 kg)
	Disc Diameter	12 cm, 8 cm
	Disc Thickness	1.2 mm
	Track Pitch	1.6 µm
	Disc Center Hole Diameter	15 mm

Reference Scanning Velocity	1.2 m/s	
Recording/Playing Time	80 minutes with CD-R media	
Read Only Disc Parameters	Formats and Modes Supported	CD-ROM-Mode 1; CD-ROM XA-Mode 2 (forms 1 and 2); CD digital audio; CD Extra; CD-I-Mode 2 (forms 1 and 2) and CD-I-Ready; Photo CD (single and multi-session); video CD
	Capacity	185 MB (Mode 2, 8cm); 540 MB (Mode 1, 12 cm); 650 MB (Mode 2, 12 cm); 700 MB (Mode 2, 12 cm)
	Block Size	Mode 1-2,048 and 2,352 bytes; mode 2, form 1-2,048; 2,328; 2,336; 2,340 and 2,352 bytes; mode 2, form 2-2,328; 2,336; 2,340 and 2,352 bytes; CD-DA-2,352 and 2,368 bytes
Writeable Disc Parameters	Disc Type	CD-R and CD-RW
	Write Methods	Disc at Once, Track at Once, Session at Once, Variable Packet, Fixed Packet
	Format and Modes Supported	CD-ROM (mode 1); CD-ROM XA (mode 2, forms 1 and 2); CD digital audio, CD-I (mode 2, forms 1 and 2); video CD
	Capacity	185 MB (Mode 2, 8cm); 540 MB (Mode 1, 12 cm); 650 MB (Mode 2, 12 cm); 700 MB (Mode 2, 12 cm)
	Block Size	Mode 1-2,048 bytes; mode 2, form 1-2,048 and 2,352 bytes; mode 2, form 2-2,352 bytes; CD-DA ---2,352 bytes
Access Times (typical)	Random	< 120 ms
	Full Stroke	< 200 ms
Data Transfer Rates	Sustained	CD-R write-1,800 KB/s (12X) CD-R write-2400 KB/s (16X) CD-RW write (1-4X media) -600 KB/s (4X) CD-RW write (4-10X media) -1,500 KB/s (10X) CD-RW write (4-12X media) -1,800 KB/s (12X) CD-RW read-3,600 KB/s (24X) Digital audio extraction (minimum) -7,200 KB/s (48X)
	Variable	CD-RW write-2,400 to 3,600 KB/s (16X to 24X) CD-RW write-2,400 to 4,800 KB/s (16X to 32X) CD-RW write-2,400 to 6,000 KB/s (16X to 40X) CD-RW write-2,400 to 7,200 KB/s (16X to 48X) CD-ROM, CD-R read-1,500 to 7,200 KB/s (10X to 48X)
Data Transfer Modes	ATA PIO mode 4 (16.7MB/s) ; ATA multi-word DMA mode 2 (16.7 MB/s); ATA UltraDMA mode 0 (16.7 MB/s) ;ATA UltraDMA mode 1 (24 MB/s) ; ATA UltraDMA mode 2 (33 MB/s) - default.	
Cache Buffer	2 MB (minimum)	
Start-up Time (single)	< 7 seconds typical	

Technical Specifications - Optical Storage

	Start-up Time (multi-session)	< 30 seconds typical	
	Stop Time	< 4 seconds	
	Power	**Source**	Four-pin, DC power receptacle
		DC power requirement	5 VDC ± 5%—100 mV ripple p-p 12 VDC ± 5%—200 mV ripple p-p
		DC current	5 VCD < 1A (typical) < 1600 mA (maximum)
			12 VCD < 600 mA (typical) < 1.4A (maximum)
			Total Drive Power (Standby mode) < 2.5 watt
	Audio Output Level	0.7 Vrms	
	Configuration Jumper Block	Master, slave and cable select modes	
	Data Interface Connector	50-pin IDE interface	
	Environmental (all conditions, non-condensing)	**Temperature** (operating)	Operating 41° to 122° F (5° to 50° C)
		Relative Humidity (operating)	10% to 85%
		Maximum Wet Bulb Temperature (operating)	84° F (29° C)

16X/48X DVD-ROM Drive	**Height**	5.25-in, half-height	
	Interface Type	ATAPI	
	Dimensions– External, Excluding Bezel (W x H)	5.88 x 1.71 in (149.5 x 43.5 mm)	
	Disc Diameter	12 cm, 8 cm	
	Disc Thickness	1.2 mm	
	Track Pitch	1.6 μm (CD), 0.74 μm (DVD)	
	Disc Center Hole Diameter	15 mm	
	Disc Formats	DVD-ROM (single and dual layer); DVD-video; DVD-R version 1.0 and 2.0; DVD-RW version 1.0 and 1.1; DVD-R multi-border; DVD+RW; DVD+R, DVD+R DL ; CD-ROM Mode 1 and 2; CD-DA; CD-ROM XA Mode 2, Form 1 and 2; CD-extra; CD-text; CD-I Mode 2, Form 1 and 2; CD-I ready; video CD, CD-bridge; PhotoCD (single and multi-session); CD-R; CD-RW	
	Disc Capacity	**DVD-ROM**	4.7 GB (DVD-5), 8.54 GB (DVD-9), 9.4 GB (DVD-10), 3.95 GB (DVD-R version 1.0), 4.7 GB (DVD-R version 2.0), 4.7 GB (DVD-RW version 1.0 and 1.1), 4.7 GB (DVD+RW), 4.7G (DVD+R), 8.5 GB (DVD+R DL)
		CD-ROM	540 MB (Mode 1, 12 cm), 640 MB (Mode 2, 12 cm), 700 MB (80 minimum CD-R and CD-RW), 180 MB (8 cm)
	Block Size (bytes)	DVD-ROM - 2048; CD-ROM Mode 0 – 2352; CD-ROM Mode 1 – 2352, 2340, 2336, 2048; CD-ROM Mode 2 – 2352, 2340, 2336, 2048	

Technical Specifications - Optical Storage

Access Times (typical reads, including settling)	**DVD-ROM Single Layer**	120 ms (typical)
	CD-ROM Mode 1	90 ms (typical)
	Full Stroke DVD	240 ms (seek) (typical)
	Full Stroke CD	160 ms (seek) (typical)
Maximum Data Transfer Rates	**CD-ROM Read**	7200 KB/s (up to 48X)
	DVD-ROM Read	21,600 KB/s (16X) Max
Data Transfer Modes	PIO Mode 4 (16.6 MB/s); Multi-word DMA mode 2 (16.6 MB/s); UltraDMA Mode 3 (44.4 MB/s)	
Power	**Source**	Four-pin, DC power receptacle
	DC Power Requirement	5 VDC ± 5% – 100 mV ripple p-p
		12 VDC ± 5% – 200 mV ripple p-p
	DC Current	5 VDC – <800 mA typical, < 1000 mA maximum
		12 VDC – < 870 mA typical
Audio Output Level	0.7 Vrms (typical)	
Configuration Jumper Block	Master, slave, and cable select modes	
Data Interface Connector	40-pin, shrouded and keyed, flat ribbon	
Environmental (all conditions non-condensing)	**Temperature** (operating)	41° to 122° F (5° to 50° C)
	Relative Humidity (operating)	10% to 85%
	Maximum Wet Bulb Temperature (operating)	86° F (30° C)
Certifications, Approvals	MMC II support, multi-read certification, Microsoft WHQL certification, ACA AS/NZS 3548 class B, CNS 13438, C.I.S.P.R. Pub 22, TUV or VDE EN60950, EN 55022, EN55024, SEMKO, NEMKO, DEMKO, FIMKO, EN 60825-1, UL 60950, and CSA C22.2 60950-2000.	
Operating systems supported	Microsoft Windows 2000, Windows XP	

Technical Specifications - Removable Storage

1.44-MB Diskette Drive	LED Indicators (front panel)	3.5 in (88.9 mm)	
	Read/Write Capacity per diskette (high/low density)	Green	
	Drive Supported	1.44 MB/720 KB	
	Drive Height	One	
	Drive Rotation	One-third	
	Transfer Rate (high/low)	300 rpm	
	Bytes/Sector	500/250 Kb/s	
	Sectors/Track (high/low)	512	
	Tracks/Side (high/low)	18/9	
	Access Times	80/80	
		Track-to-Track (high/low)	3/6 ms
		Average (high/low)	169/94 ms
		Settling Time	15 ms
		Latency Average	100 ms
Zip 250 Drive	Interface	ATAPI IDE	
	Media format supported	Zip disk	
	Media capacity	250 MB	
	Access time	29 ms (average)	
	Drive rotational speed	2,941 rpm	
	Size	Fits into a 5.25-inch bay (with bracket)	
	Data transfer rate	Maximum sustained	2.4 Mbps
			1.4 Mbps
			1.4 Mbps (100 MB), 2.4 MB/s (250 MB)
			0.3 Mbps (100 MB), 2.4 MB/s (250 MB)
			11.1 Mbps
	Operating conditions	Temperature	50° to 125° F (10° to 51.5° C)
		Humidity	20% to 80%
	Compatible operating system	Microsoft Windows 2000 and Windows NT 4.0	

Technical Specifications - Removable Storage

HP Drive Key II	Dimensions (HxWxD)	0.32 x 0.63 x 2.67 in (0.8 x 1.6 x 6.8 cm)	
	Storage Capacity	256 MB	
	Weight	0.05 lb (0.02 kg)	
	Transfer Rates	Read	Capable of 6.0 MB/s sustained read speed in USB 2.0 system
		Write	Capable of 6.0 MB/s sustained write speed in USB 2.0 system
	Operating Temperature	41° to 122° F (5° to 50° C)	
	Non-operating Temperature	-22° to 140° F (-30° to 60° C)	
	Operating System Support	Microsoft Windows 2000, Windows XP Professional, Windows XP Home. No driver is required for this device. Native support is provided by the operating system.	
	Option Kit Contents	HP Drive Key II, documentation	

HP 16-in-1 Media Card Reader	USB interface	USB 2.0 High-speed device via PCI card or pass -through via internal USB port of system board	
	Advance protocol support	• Supports hardware ECC (Error Correction Code) function • Supports hardware CRC (Cyclic Redundancy Check) function • Supports MS 4-bit parallel transfer mode • Supports MS-PRO 4-bit parallel transfer mode • Supports SD 4-bit parallel transfer mode • Supports high-speed 50 MHz SD 4-bit card (version 1.1) • Support high-speed 52 MHz MMC 8-bit card (version 4.x)	
	Supported media types	• Supports CompactFlash Card Type I (CF I), CompactFlash Card Type II (CF II),MicroDrive (MD) • Supports 3.3V SmartMedia Card (SM), SmartMedia ROM (SM ROM), xD-Picture Card (xD) • Supports Secure Digital Card (SD), Secure Digital ROM Card (SD ROM), miniSD, MultiMediaCard (MMC), Secure MultiMediaCard (Secure MMC), ROM Type MultiMediaCard (MMC ROM), Reduced Size MultiMediaCard (RS MMC), MultiMediaCard 4.0 (MMC Plus), Reduced Size MultiMediaCard 4.0 (MMC Mobile) • Support Memory Stick (MS), Memory Stick ROM (MS ROM), MagicGate Memory Stick (MG), Memory Stick Select, Memory Stick Duo (MS Duo), Memory Stick PRO (MS-PRO), Memory Stick PRO Duo (MS PRO Duo)	
	Mechanical	Length (3.5")	124.7 cm
		Width (3.5")	101.6 cm
		Height (3.5")	25.4 cm
		Length (5.25")	171.6 cm
		Width (5.25")	148.9 cm
		Height (5.25")	42.7 cm

Technical Specifications - Removable Storage

Environmental	Operational environmental extremes	Test Parameters/Conditions - Power applied, unit operating on system ±5% nominal supply voltage. 10°C 10% R.H. = 24 hours 10°C 90% R.H. = 24 hours 20°C 90% R.H. = 24 hours 30°C 90% R.H. = 24 hours 40°C 90% R.H. = 24 hours 50°C 90% R.H. = 24 hours 50°C 10% R.H. = 24 hours
	Storage environmental extremes	Test Parameters/Conditions 60°C @ 80% R.H. for 96 hours -30°C @ 20% R.H. for 48 hours No power applied Delta °C < 1.0°C/min Delta % R.H. < 1.5% R.H./min
Operating system support	Microsoft Windows 2000 (Service Pack 3 or greater), Windows XP Home, Windows XP Professional	
Approvals	USB-IF, WHQL, Compliant with USB Mass Storage Class Bulk only Transport Specification Rev. 1.0, Compliant Intel Front Panel I/O Connectivity Design Guide V. 1.2 FCC, CE, BSMI, C-Tick, VCCI, MIC, cUL, TUV-T	

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